WHAT IS CLAIMED IS:

1 A holographic optical information recording/reproducing device that, to reproduce digital data recorded in a form of interference fringes produced by two coherent beams in a recording medium, projects a coherent beam to the recording medium and receives a reproduction signal beam obtained by diffraction at the recording medium by means of a two-dimensional photodetector array, the holographic optical information recording/reproducing device comprising:

a tunable coherent light source that emits the coherent beam; and

a control section that reads a position information of the reproduction signal beam on the two-dimensional photodetector array, and controls a wavelength of the tunable coherent light source according to the position information.

2. The holographic optical information recording/reproducing device according to claim 1, wherein at least one photoreceptor cell of the two-dimensional photodetector array is divided into not less than two regions, at least a part of the reproduction signal beam is made incident on the regions of the divided photoreceptor cell so as to be used as a servo-use beam, and the control section detects the position information according to a differential signal derived from signals obtained at the respective regions by the servo-use beam.

3. The holographic optical information recording/reproducing device according to claim 1, further comprising:

an anamorphic optical system through which the coherent beam passes,

wherein the control section detects a position deviation of the coherent beam in a focusing direction and a wavelength deviation of the tunable coherent light source independently, according to changes in a reproduced image detected by the two-dimensional photodetector array.

4. The holographic optical information recording/reproducing device according to claim 1, further comprising:

a beam splitter for dividing the coherent beam emitted from the tunable coherent light source into two beams that are a signal beam and a

reference beam;

a spatial light modulator for modulating an intensity of the signal beam two-dimensionally;

an element for imparting a two-dimensional phase distribution to the signal beam on the spatial light modulator, the element having a greater coherence length in its peripheral region than in its central region; and

an optical system for crossing the signal beam and the reference beam on the recording medium.

5. The holographic optical information recording/reproducing device according to claim 4, wherein the element for imparting a two-dimensional phase distribution includes cells that are arranged in a two-dimensional square grid and that have phase shifts of any one of 0, $\pi/2$, π, and $3\pi/2$, and a phase difference between adjacent cells is either $\pi/2$ or $3\pi/2$.

6. The holographic optical information recording/reproducing device according to claim 1, further comprising a lens system for focusing diffracted light from the recording medium into the two-dimensional photodetector array, wherein the recording medium is disposed at a position different from a focus of the lens system.

7. The holographic optical information recording/reproducing device according to claim 2, wherein recording is carried out so that the servo-use beam of the reproduction signal beam is in an ON state constantly.

8. The holographic optical information recording/reproducing device according to claim 2, wherein recording is carried out so that the servo-use beam of the reproduction signal beam is in an ON state at a higher probability as compared with the other beam spots.

9. The holographic optical information recording/reproducing device according to claim 1, wherein the tunable coherent light source is a coherent light source utilizing a tunable semiconductor laser and a second-harmonic generation element.

10. The holographic optical information recording/reproducing device according to claim 2, wherein the divided photoreceptor cells are positioned at

four corners of the two-dimensional photodetector array.